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ABSTRACT

The objectives and skills promoted by college general education studies are considered, including objectives identified by President Truman's Commission on Higher Education and by a task force of the American Association of State Colleges and Universities. Purposes of the general education program are to: develop skills to complete college and live actively in society; promote awareness or the diversity of human endeavors in intellectual, creative, social, and technological spheres; and develop analytical and critical skills. Minimum goals include basic skills and knowledge, intellectual awareness of the global heritage and the value of cultural activities, and judgment development and values clarification. The basic skills of communication, English composition, oral communication and rhetoric, and mathematics are discussed. Criteria for a general education program are identified for: writing and learning, speaking and listening, mathematics, cultural heritage, American heritage, social institutions, natural science, fitness and wellness, "across the curriculum," and integration. The Memphis State University (Tennessee) general education model is briefly addressed. (SW)

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THE REVIVAL OF GENERAL EDUCATION PROGRAMS IN AMERICAN COLLEGES AND UNIVERSITIES

by

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Presented at
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Introduction

In a passage in Politics, Aristotle (384-322 B.C.) posed questions about education that relate to what should be taught: (1)

> That education should be regulated by law and should be an affair of state is not to be denied, but what should be the character of this public education, and how young persons should be educated, are questions which remain to be considered. For mankind are by no means agreed about the things to be taught, whether we look to virtue or the best life.
>
> Neither is it clear whether education is more concerned with intellectual or with moral virtue. The existing practice is perplexing; no one knows on what principle we should proceed--should the useful in life, or should virtue, or should the higher knowledge be the aim of our training; all three opinions have been entertained. Again, about the means there is no agreement; for different persons, starting with different ideas about the nature of virtue, naturally disagree about the practice of it.
>
> There can be no doubt that children should be taught those useful things which are really necessary, but not all things; for occupations are divided into liberal and illiberal; and to young children should be imparted only such kinds of knowledge as will be useful to them without vulgarizing them. And any occupation, art, or science, which makes the body or soul or mind of the freeman less fit for the practice or exercise of virtue, is vulgar; wherefore we call those arts vulgar which tend to deform the body, and likewise all paid employments, for they absorb and degrade the mind.

His thoughts form the basis for argumentation today about curriculum, classification of students by ability, and methods of instruction.

Several hundred years later, during Alcuin's time (A.D. 735-804), the phrase Seven Liberal Arts was used to describe the curriculum. They consisted of the Trivium (grammar, rhetoric, and logic) and the Quadrivium (arithmetic, geometry, music, and astronomy). They were defined broadly and, therefore, were probably more like our term general education than the current meaning of the term liberal arts. (2)

Description of General Education

General education is defined as that part of the school program that concerns itself with the development of common learning.(3) It is initiated in the elementary school and is repeated in the college or university in order to restate, redefine, and reemphasize the commonalities in all learning. In 1963, the National Education Association published its priorities for general education: (4)

> Priorities for the schools are the teaching of skills in reading, composition, listening, speaking (both native and foreign languages), and computation . . . ways of creative and disciplined thinking, including methods of inquiry and application of knowledge . . . competence in self-instruction and independent learning . . . fundamental understanding of the humanities and the arts, the social and natural sciences, and mathematics . . . appreciation of a discriminating taste in literature, music, and the visual arts. . . instruction in health and physical education.

Adopting general education by higher educational institutions has not been universal, but it has been persistent. Its purpose is to present a common curriculum to all students enrolled; therefore, it was more nearly adopted when institutions were smaller and when the purposes of an advanced education were less specific. With the advent of specific curricular offerings, such as agriculture, engineering, and education, as seen in the development of individual degree-granting colleges within universities, and to avoid requiring an excessive amount of hours, general education was abandoned on a large scale. A few institutions persisted in offering a common core and thereby maintained the thread of existence that traced back to antiguity.

It has been common to express general education programs in credit hours rather than in purposes or goals for individuals. Such was the situation at several institutions of higher education.(5) At Allegheny College, seven of nine courses were required for a general education emphasis: communications, organism and environment, energy and matter or earth and stars, introduction to

literature or art and society, ideas and institutions of Western society, problems of the modern world, and the world of values.

At the University of Chicago, humanities, natural science, reading, writing, and criticism, social science (political science, economics, social problems, and psychology), world history, and observation, interpretation, and integration (an examination of assumptions, interrelationships, and history of thought), constituted the general education program.

At Peabody College, the program consisted of English, communication, humanities, natural science and mathematics, and social studies - 12 hours in each category. At Southwestern University in Texas, English composition, literature, sociology, economics (principles), natural science, general psychology, philosophy and religion, art, language, and political science instituted the general core.

In small colleges, the core was for all majors and was offered through several departments. In some large universities, divisions were the vehicles through which general education was offered. Michigan State - East Lansing offered through the University College American thought and language, natural science, social science, and humanities. It sought to develop in the student increased skill and sensitivity in the areas of composition and reading; enlarged knowledge and appreciation of Western Culture, European and American; and a deeper understanding of the broad principles and practical applications of the natural and social sciences.

A positive and definitive method of expressing the content of general education is through statements of purpose that denote competencies rather than hours. President Truman's Commission on Higher Education elaborated on the objectives of general education in Education for Democracy: (6)

1. To develop for the regulation of one's personal and

civic life a code of behavior based on ethical principles consistent with democratic ideals.

2. To participate actively as an informed and responsible citizen in solving the social, economic, and political problems of one's community, State, and Nation.

3. To recognize the interdependence of the different peoples of the world and one's personal responsibility for fostering international understanding and peace.

4. To understand the common phenomena in one's physical environment, to apply habits of scientific thought to both personal and civic problems, and to appreciate the implications of scientific discoveries for human welfare.

5. To understand the ideas of others and to express one's own effectively.

6. To attain a satisfactory emotional and social adjustment.

7. To maintain and improve his own health and to cooperate actively and intelligently in solving community health problems.

8. To understand and enjoy literature, art, music, and other cultural activities as expressions of personal and social experience, and to participate to some extent in some form of creative activity.

9. To acquire the knowledge and attitudes basic to a satisfying family life.

10. To choose a socially useful and personally satisfying vocation that will permit one to use to the full his particular interests and abilities.

11. To acquire and use the skills and habits involved in critical and constructive thinking.

A set of objectives was maintained in a California institution in order to help the student to develop several behaviors: (7)

1. Ability to use the English language effectively, in reading, in writing, and in speech.
2. Knowledge of scientific thought and method.
3. Understanding of the historical development of our civilization.
4. Understanding of human society, its problems and its institutions.

5. Understanding of the nature and operation of the American economic and political institutions.
6. Knowledge and appreciation of literature and the fine arts.
7. Knowledge of and sensitivity to ethical and spiritual values.

Many colleges and universities today - both large and small, public and private - are making fundamental changes in general education programs, according to Jerry Gaff.(8) There are more requirements, higher standards, greater coherence, and rediscovery that some knowledge is more important than other knowledge. There is also a movement toward a limited list of courses that serve general education purposes, as at Harvard, where a reduction from 2500 to 125-150 was made. There is also an identification of necessary college-level skills (usually writing, speaking, critical thinking, and computing). Further, there is the identification of liberal arts subject matter as the most fundamental bodies of knowledge, methods, and perspectives devised by the human mind. Also, there is the integration of knowledge, such as the development of thematic studies and programs. The study of values is also characteristic of the trend, including those that are economic, social, religious, political, and aesthetic.

The Memphis State University Model

A short list of general education goals was enuniciated by the Task Force of the American Association of State Colleges and Universities (AASCU): (9)

> A baccalaureate degree assumes a capability to deal creatively and realistically with personal, community, national and international concerns. It assumes that a college graduate is able to think logically, to act rationally, and to make appropriate decisions about the future based on past and present conditions and circumstances. It also assumes an understanding of ethics and aesthetics which provides a foundation for the development of a value system which can be translated into effective social action.
>
> To qualify for the baccalureate degree, a student must at least:

1. achieve mastery in written and spoken English;

2. understand and be able to apply the scientific method and basic mathematical concepts;

3. gain a perspective of the social science, including knowledge about the interaction of human groups, and of world and U.S. history, institutions, and economic systems; and

4. have acquired basic knowledge and competencies in the humanities, such as literature, art, and foreign languages, and a knowledgeable appreciation of the value of the humanities to the individual and to society.

This statement was adopted with some change by the Memphis State University General Education Task Force, which also added that the competencies required should be carefully and appropriately evaluated. Each student was expected to achieve a mastery of either a subject or an interdisciplinary field. (10)

At a Lilly Foundation workshop on the liberal arts, a team from the University produced a report (11) that included the AASCU philosophy and a procedure that permitted each college or degree-granting unit to develop its own general education requirements within the framework specified in the statement of philosophy. Further, it was recommended that a University committee be appointed to review and approve the general education program of each college and to establish the courses to be used to satisfy the general education requirements. At a subsequent meeting of the University Senate, the document was presented and defeated. A report on general education by Committee II of the Senate was later presented to the Senate Executive Committee and was modified for presentation to the Senate, which rejected the modification and accepted Committee II's statement of philosophy. The Report and Recommendations of the Academic Senate Special Committee on General Education was accepted by the Senate with only a few minor changes. The statement follows; the criteria to support the rationale are found in

Appendix A.

Philosophy of General Education (12)

The general education program is that part of the undergraduate curriculum that promotes a common background for all baccalaureate candidates. The purpose of the general education program is threefold: (1) to help students develop the skills necessary for completing a college career and for assuming an active role in contemporary society; (2) to give students an awareness of the diversity of human endeavors in intellectual, creative, social, and technological spheres; and (3) to help students develop analytical and critical faculties that can be applied across the range of issues confronting them in the modern world. Above all, the general education program should make available to the student the tools and awareness necessary for active, lifelong learning and for active, literate participation in society.

The following minimum goals can be identified: (1) basic skills and knowledge: proficiency in communication skills, proficiency in computational skills, proficiency in synthetic reasoning, and awareness of the relationship of one's health and well being to active participation in society; (2) intellectual awareness of the global heritage and the function and value of cultural activities; of the origin and function of social, political, and commercial institutions; and of the methods of inquiry in the natural sciences and mathematics; and (3) judgment development: understanding of the values that underlie our society and other societies and of the ethical dimension of individual and social life; understanding of the interrelatedness of knowledge and the connectedness of different forms of inquiry; and understanding of the need to balance a respect for the rich diversity of human cultures with a recognition that we share common human bonds and common human problems in an increasingly global and interconnected world.

General Education Rationale (13)

The general education program has been conceived both as a precondition and as a context for specialization. It consists of basic college skills, skills use, human studies, natural science, and fitness and wellness.

Basic College Skills

Communication

Language is the means of thinking and learning in all disciplines, the essential tool for developing informed citizens. According to the Carnegie Report (14), "proficiency in the written and the spoken word is the first prerequisite for a college-level education. Students need language to grasp and express feelings and ideas effectively." Communication is defined as "language in action, by which individuals participate in the affairs of society through reading, writing, speaking, listening, and using electronic media" (15). The bachelor's degree, says the Association of State Colleges and Universities, "should mean that its holders can read, write, and speak at levels of distinction and have been given opportunities to learn how. It also should mean that many of them do so with style" (9).

English Composition

A member of today's complex society must be able to communicate effectively in writing. Because writing involves multiple skills--including the abilities to read critically, to abstract essential information from documents, to analyze that information, and to synthesize information from multiple sources--the college student needs experience with such reading and writing beyond the high school level. Piaget's concept of cognitive development suggests that the average college student has synthesizing abilities that ordinarily have not developed during the secondary-school years.

Although entering students at most universities will have studied English for many years, the college reading/writing experience enhances such skills and leads to the development of those analytic and snythetic abilities that underlie good reading and writing.

Oral Communication and Rhetoric

For the classical world, the good citizen was "the good man speaking well." This is a time that needs the support of this ethical and civic view of speaking. In a world that is becoming increasingly interdependent and in which electronic media have made communication easy and in many cases instant, it is important that good citizens know how to speak publicly and in groups, accurately and well, and, in addition, that they be critical listeners and participants in community and other public dialogues.

Mathematics

Mathematical methods provide essential insight in many disciplines. Thus, some knowledge of mathematical structure and their applications is necessary in order that one may have an understanding of current innovations based on mathematical ideas. Further, a threshold of mathematical skill is necessary in order to make such an understanding meaningful.

Skills Use

The basic college skills of writing, speaking, and computation are essential to the learning process. Developing and maintaining such skills require continual practice and should be given attention in every General Education course. Every course in the General Education program must, therefore, incorporate either writing or computation assignments appropriate to its area of study, with the purpose of encouraging the student to build on those skills developed in high school and the Basic College Skills courses.

The abilities to express oneself clearly both in speaking and in writing, and to make quantitative judgments and computations, are marks of the educated person.

Human Studies

As citizens of the nation and inhabitants of the world, students need to acquire some understanding of the various dimensions of the human experience. The human studies requirement is intended to help provide that understanding. It recognizes that: (1) humans have a history and heritage about which they need to develop some awareness. (2) As part of that heritage, humans have felt the need to explore life's meanings and mysteries through a variety of forms of cultural and creative expressions and to investigate the ethical dimensions of human activity. Hence, students need some exposure to these expressions and cultures and to the nature of humanistic and aesthetic inquiry. (3) Humans are social beings and, therefore, students should acquire some awareness of the character of social systems and human behavior and of the methods of social sciences in investigating such systems and behavior. (4) Humans are part of an interdependent world and hence need to develop an understanding of the nature of other cultures and of relationships among peoples and societies in a global system.

World Heritage

A failure of students to learn their own heritage leaves them shallow and rootless. A failure to learn something of the heritage of others can leave them narrow and incapable of dealing effectively with others. Yet, both national and local evidence suggest that most students arrive at college with inadequate knowledge of Western and non-Western civilizations. It is therefore vital that the general education program expose all students to their global

heritage in both its Western and non-Western dimensions.

Understanding of our heritage is critical to understanding ourselves, for our heritage is nothing less than that concatenation of ideas, traditions, and values which, for better or worse, have helped shape our world and the way we perceive it. Our heritage and the heritage of others also constitute a repository of diverse and creative attempts to grapple with the human condition, a repository that students should consult when engaging in the characteristic quest of the humanities--the exploration of what it is to be human.

Literary Heritage

Sophomore English courses complete the sequence begun in freshman composition by continuing to build on verbal, perceptual, analytical, and research skills and by focusing on the forms of writing, with additional emphasis on techniques of close reading basic to understanding any discourse. These courses develop critical and analytical judgment by engaging students in synthesizing ideas through writing and discussion based on a range of literature, rich in quality, sensitive to time, and representative of a variety of cultures and literary forms.

Fine Arts Heritage

Aesthetic appreciation can be developed through experience with works of art that extend sensibilities and enlarge perspectives on what it is to be human. The fine arts comprise a heritage of art forms that bring human experience into an immediacy that engages both the aesthetic and the intellectual faculties of their audiences. An appreciation of the creative function of art, together with an understanding of a variety of ark works, is essential to the development of a mature sense of world heritage.

Historical/Philosophical Heritage

In addition to the study of literature and the arts, students should examine ideas and events systematically, and as part of a cultural whole.

American Heritage

The American Heritage requirement should help prepare students for responsible citizenship by providing them with a better understanding of their national heritage. Courses fulfilling this requirement should convey both the story of the American people as consisting of different genders, races, and nationalities and the development of the American nation, with political structures, social institutions, and cultural attributes.

Social Institutions/Social Sciences

Students need knowledge about central institutions and values in their own society and in societies and cultures around the world in order to perform capably as citizens. Defining problems and employing various kinds of information in seeking solutions to those problems require the analytical skills developed in the study of the social/behavioral sciences. The social/behavioral sciences also provide the knowledge needed to live effectively in a world possessing limited natural resources and characterized by ethnic diversity, cultural pluralism, different genders, and increasing interdependence.

Natural Science

Science and technology are among the principal driving forces in modern society. Appreciation of such problems as waste disposal and communications requires some understanding of the level of technical achievement that modern man has attained. Other issues, such as genetic engineering and the nature and managment of our available energy resources, demand that informed decisions be

based on an understanding of the nature and limitations of scientific data; the attendant ethical issues that arise from the level of scientific and technical development cannot be discussed rationally without such understanding.

Fitness and Wellness

The traditional concept of a sound mind in a sound body remains as true today as it ever was. Moreover, over the past few decades, much information has been developed concerning scientific approaches to biological maintenance, to the health adnd fitness of individuals, and to community health.

Writing Intensive and Computation Intensive

There is evidence to suggest that skills in writing and computation may atrophy if not reinforced in other areas of the curriculum. Furthermore, it is important for students to use these skills in a variety of contexts, so that they do not come to regard them as something confined to English or mathematics classes.

Integration

However powerful specialization may be in enabling student to acquire greater knowledge and to find answers to many questions, effective consideration of more general issues requires skill in integration. General education will encourage the development of such skills by providing students the opportunity to reflect upon interrelationships between areas of study within or across disciplines.

Conclusions

There is an increasing attention to the quality of undergraduate education in the United States and a significant movement in establishing general education programs for the first two years of study. Historically, emphasis

have been described in credit hours granted for specific courses, but in the latest developments emphasis is on the learner and what is to be achieved by that person. Elaborations about goals include rationales and criteria for achieving them. Inferred is the expectation of broad-based faculty involvement because the locus of the program is in the college/university, not in a department. The types of course offerings demand a multidisciplinary approach to planning course content and selecting methodology for instructional effectiveness. The selection of effective teachers is vital to the success of the programs as is the monitoring of progress toward programmatic achievements. Evaluation of all facets of general education is necessary and expected in order to assure that course materials agreed on are taught, minimum competencies are achieved by students, and faculty who teach are competent, informed and knowledgeable about the latest research and contributions to literature relating to the subject matter.

Institutions that adopt these programs and implement them have to give time to ascertain their effectiveness, which is intended to be the enhancement of a student's ability to adapt to an ever-changing, technologically-oriented society upon graduation from an institution of higher education. Thus, integration of significant knowledge must be the apex of the learning outcome so that the recipient, the student, might succeed in the endeavors to understand the surrounding environment, communicate with those in proximity on an intellectual and social level, and react maturely to life situations involved in.

Through the general education programs, institutions produce graduates of the types the public would favor and who would meet the specifications of boards of regents who often advocate only courses and hourly credits but not often set requirements for competencies defined in behavioral terminology. The

new model - the enlarged, definitive, highly specific, rational one - designed by a faculty that has committed themselves to its existence, supercedes any other that the institution has had by virtue of its quality and potential for more significant change in undergraduates.

The Memphis State University model is a response to a mandate that all institutions under the Tennessee State Board of Regents devise acceptable general education programs by a given date or have a program imposed on them by the Board. Rather than choose the mandated program, the administration asked experienced faculty members to devise a program that they thought would provide undergraduates with subject matter that fitted them for life and learning. The result of their effort is a program to equip students with basic skills and knowledge, make them intellectually aware, and develop in them a capacity for judgement.

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APPENDIX A

CRITERIA FOR A GENERAL EDUCATION PROGRAM

CRITERIA FOR A GENERAL EDUCATION PROGRAM

WRITING AND READING

Courses approved for this dimension of the general education program should lead students to the following goals:

1. The ability to recognize and effectively to use standard grammar and syntax.

2. The ability to express ideas clearly and effectively.

3. The ability to organize and write a coherent essay, choosing appropriately from among various options for invention and development.

4. The ability to write a properly documented research paper.

5. The ability to recognize and apply various levels of usage, e.g., formal, informal, slang, and technical.

6. The ability to read with comprehension such public documents as government reports, learned non-technical essays, and major cultural texts.

7. The ability to read with critical discernment and to perceive biases and points of view implicit in an author's writings.

8. The ability to identify central themes in an essay or paper and to separate them from the peripheral.

SPEAKING AND LISTENING

The course approved for this dimension of the general education program should lead students to the following goals:

1. In different situations, the ability to speak with vocal effectiveness, including clarity of articulation and pronunciation; variety in the use of loudness, pitch, pause, and emphasis; as well as effective use of the nonverbal communications of body and gesture.

2. The ability to ask and answer questions coherently and concisely.

3. The ability to communicate effectively in group and interpersonal situations.

4. The ability to identify and comprehend the main and subordinate ideas in oral presentations and discussions, and to report accurately what others have said.

5. The ability to research, write, and deliver with confidence a speech that is logically developed and commands the attention of the audience.

6. The ability to respond intelligently and critically to the verbal and nonverbal messages of the mass media, particularly those of television.

7. The ability to communicate with ethical sensitivity and to discern the power of speech to effect change in the social order.

MATHEMATICS

Courses approved for this dimension of the general education program will include instruction toward the following goals:

1. Understanding and judging mathematical arguments and concepts.

2. Utilizing mathematical models of real-world behavior.

3. Providing instruction in such aspects of mathematics as logic and set theory, number theory, and calculus.

HUMAN STUDIES

Cultural Heritage

The Cultural Heritage requirement of the general education program should provide students with the following:

1. An investigation of concepts of culture, including an appreciation of different forms of cultural expression and how they relate both to each other and to the culture as a whole.

2. Close contact with significant primary texts and works of art which interpret and portray the human experience.

3. Critical engagement with ideas, forces, and values that have influenced the human experience.

4. Some awareness of non-Western cultures, both for their own sakes and to provide a comparative context for understanding more fully Western cultural heritage.

5. Insight into historical process, both change and continuity over time.

The Fine Arts dimension of the Cultural Heritage requirement should include instruction toward:

1. An understanding of components of the art type(s) studied (e.g., melody, harmony, rhythm and meter, and the like, in music; color, light, shade, intensity, design, perspective, and the like in painting; character, plot development, movement, language, scenic design, and the like, in theater).

2. An understanding of the aesthetic and utilitarian value-functions of the performed work of art within its historical and societal contexts.

3. An understanding of the relationship of artistic vision to medium of expression, audience response, and cultural assimilation.

4. Comprehension of artistic styles and structures from representative historical periods and cultures.

The Historical/Philosophical dimension of the Cultural Heritage requirement should include instruction toward:

1. The nature of historical and philosophical inquiry.

2. An explanation of culture in the sense of a shared complex of ideas, values, and concerns, by examining how these aspects interrelate in their social context, how they are expressed in various forms, and how they change over time.

3. Understanding of the ideas and cultures of some significant period of both the ancient world and the modern world.

The Literary Heritage dimension of the Cultural Heritage requirement should include instruction toward the following:

1. Developing a perspective on the individual's role in relation to cultural heritage and to present society, including the role of imaginative language in shaping and reflecting human experience.

2. Developing an understanding of the techniques of close, critical reading and of analysis of both form and content in a variety of texts, followed by writing to demonstrate this understanding.

3. Developing the ability to discover assumptions and implications, to synthesize multiple perspectives, and to clarify one's own view by evaluating ideas presented in major texts of our cultural heritage.

American Heritage

The American Heritage requirement should help prepare students for responsible citizenship by providing them with a better understanding of their national heritage. This requirement should convey both the story of the American people as consisting of different genders, races, and nationalities and the development of the American nation, with specific political structures, social institutions, and cultural attributes.

The American Heritage requirement of the general education program should:

1. Examine the interaction among peoples of different genders, national orgins, races and cultures, and how such interaction has shaped American society.

2. Examine the development of political, social, and commercial institutions in American History.

3. Explore the political and social values which have helped inform and influence American society and culture.

4. Investigate the changing role and societal impact of technological development in American history.

5. Examine the changing relationship between Americans and their physical environment.

6. Explore the evolving place of the United States in a global system, including its emergence as a world power.

7. Help students perceive the interrelationships among ideas, institutions, and environments which produced the American culture.

Social Institutions

The Social Institutions/Social Sciences courses included in the general education program should provide students the following basic knowledge and skills:

1. An understanding of institutions, issues, and problems of world societies and methodologies used in arriving at such understanding. This includes:

   a. The ability to comprehend basic information developed by the social sciences, including statistical data and other materials.

   b. Familiarity with the basic method of the social sciences, that is, with the formulation and testing of hypotheses.

   c. Familiarity with how to analyze a social problem or social institution by using social science materials and methods.

2. An awareness of the human experience as an increasingly globalized phenomenon in which people are constantly being influenced by international, cross-cultural, multi-cultural, and multi-ethnic interactions. For students to achieve this awareness, opportunities must be provided.

   a. to learn to perceive and understand the world as a global system;

   b. to see themselves as participants in that system.

NATURAL SCIENCE

Courses approved for this dimension of the general education program will include instruction toward the following goals:

1. An understanding of the nature of scientific laws, that they are formulated mathematically, that they evolve, and that they contain no

more absolute truth than other principles.

2. An understanding of the components of scientific advance (experimentation and analysis) and of the contributing modes of thought: inductive reasoning, the hypothetico-deductive process, and serendipity.

3. An understanding of the physical, biological, and/or environmental systems as involving many interactive elements.

4. An understanding of the connections among the sciences and the interaction of the sciences with other disciplines, and of the import and value of science and technology to modern society.

Laboratory work should include instruction toward the following:

1. Making and recording observations and measurements.

2. Developing skills in analyzing data and coming to some understanding of averages and errors.

3. Making rational conclusions based on the synthesis of various kinds of information from both lecture and laboratory experience.

FITNESS AND WELLNESS

This dimension of the general education program will include instruction toward the following goals:

1. Providing students with a basic understanding of health and fitness.

2. Acquainting students with the types of information available relating to diet, exercise, etc. to the development of some level of overall fitness and wellness.

3. Introducing students to those activities which can enhance or promote a continued healthy and active life.

ACROSS THE CURRICULUM

To be designated Writing Intensive, Oral Communication Intensive, or Computation Intensive, courses which qualify for the Across the Curriculum" dimension of the general education program must do the following:

1. Reinforce a substantial number of the criteria established for writing, or for mathematics, or for speaking and listening.

In addition,

2. Every course accepted for general education in the areas of Human Studies, Natural Science, and Fitness and Wellness must include a significant amount of writing, or mathematical reasoning, or speaking and listening.

3. Courses which are designated Writing Intensive (w) or Computation Intensive (c) must be taught at the upper division level.

Note: Criterion #3 is not a recommendation for the development of special upper division writing or mathematics courses (e.g., Mathematics for History Majors, or Writing for Electrical Engineers). The intent of the recommendation is that certain regular departmental courses should require a significant amount of writing or quantitative analysis.

INTEGRATION

Courses approved for this dimension of the general education program should include instruction toward the following goals:

1. Providing students opportunities to study related content from the perspectives of more than one academic discipline, or to synthesize ideas, methodologies, approaches, etc. from different subfields within their major disciplines.

2. Providing students opportunities to use methodologies from more than one discipline or subfield to solve problems, approach issues, and the like.

3. In discussions, independent work, examinations, class projects, and the like, providing students opportunities to integrate materials in the manner described in (1) and (2).